

**DRY ETCHING AND MIRROR DEPOSITION PROCESSES  
FOR SILICONE ELASTOMER**

5

**Abstract of the Disclosure**

10  
15

15

According to the invention semiconductor processing procedures can be applied to silicone elastomeric materials. The surface tension of the elastomeric material is changed by depositing a thin layer of silicon, silicon nitride, silicon dioxide or a combination thereof onto the elastomer's exposed surface. In the illustrated embodiment it is shown that it is possible to deposit a thin layer of silicon dioxide onto the elastomer's exposed surface through reactive sputter deposition of silicon dioxide within an argon-oxygen plasma. In another plasma fabrication procedure, the elastomer material is directionally etched using a standard RF plasma etching system and a dry chemical oxygen-Freon removal procedure, which procedure volatilizes all of the components of the polydimethylsilicone (PDMS) or GE's RTV elastomer material.